WEST Search History

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DATE: Wednesday, July 05, 2006

Hide?	Set Name	Query	Hit Count
	DB=PGPB,USPT; PLUR=YES; OP=ADJ		
☐	L13	(thin articles) and cleaning and applying and fluid, and transmitter and film and form$	3
	DB=EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ		
☐	L12	(thin articles) and cleaning and applying and fluid, and transmitter and film and form$	0
☐	L11	(thin articles) with cleaning with applying with fluid, with transmitter with film with form$	0
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☐	L10	(thin articles) with cleaning with applying with fluid, with transmitter with film with form$	0
	DB=PGPB; PLUR=YES; OP=ADJ		
☐	L9	(processing with $substrate with applying with megasonic with film).clm.	0
☐	L8	(processing with $substrate with applying with megasonic with meniscus).clm.	0
☐	L7	(processing with $substrate with applying with megasonic with horizontal).clm.	0
☐	L6	(processing with $substrate with applying with megasonic).clm.	3
☐	L5	(processing with $substrate with liquid with transmitter).clm.	1
☐	L4	(processing with $substrate with spraying with transmitter).clm.	0
☐	L3	(processing with wafer with spraying with transmitter).clm.	0
	DB=USPT; PLUR=YES; OP=ADJ		
☐	L2	6463938.pn.	1
☐	L1	6681782.pn.	1

END OF SEARCH HISTORY

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The probable cause is use of unlimited truncation. Revise your search strategy to use limited truncation.

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Search Results - Record(s) 1 through 3 of 3 returned.

☐ 1. Document ID: US 20040168707 A1

L13: Entry 1 of 3 File: PGPB Sep 2, 2004

PGPUB-DOCUMENT-NUMBER: 20040168707
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040168707 A1

TITLE: Apparatus and methods for reducing damage to substrates during megasonic cleaning processes

PUBLICATION-DATE: September 2, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Bran, Mario E.	Garden Grove	CA	US
Olesen, Michael B.	Yorba Linda	CA	US
Wu, Yi	Irvine	CA	US

US-CL-CURRENT: 134/1.3; 134/137, 134/184, 134/32, 134/33, 134/34

ABSTRACT:

The present invention provides a megasonic cleaning apparatus configured to provide effective cleaning of a substrate without causing damage to the substrate. The apparatus includes a probe having one of a variety of cross-sections configured to decrease the ratio of normal-incident waves to shallow-angle waves. One such cross-section includes a channel running along a portion of the lower edge of the probe. Another cross-section includes a narrow lower edge of the probe. Another cross-section is elliptical. Another cross-section includes transverse bores originating in the lower edge of the probe. As an alternative to, or in addition to, providing a probe having a cross-section other than circular, the present invention may also provide a probe having a roughened lower surface.

Full | Title | Citation | Front | Review | Classification | Date | Reference | Sequences | Attachments | Claims | KWIC | Draw De

☐ 2. Document ID: US 6892738 B2

L13: Entry 2 of 3 File: USPT May 17, 2005

US-PAT-NO: 6892738
DOCUMENT-IDENTIFIER: US 6892738 B2

TITLE: Apparatus and methods for reducing damage to substrates during megasonic cleaning processes

DATE-ISSUED: May 17, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Bran; Mario E.	Garden Grove	CA		
Olesen; Michael B.	Yorba Linda	CA		
Wu; Yi	Irvine	CA		

US-CL-CURRENT: 134/1.3; 134/137, 134/148, 134/151, 134/153, 134/184, 134/198, 134/34, 134/902, 310/311, 310/320, 310/367 , 310/368, 310/369, 310/370, 438/906

ABSTRACT:

The present invention provides a megasonic cleaning apparatus configured to provide effective cleaning of a substrate without causing damage to the substrate. The apparatus includes a probe having one of a variety of cross-sections configured to decrease the ratio of normal-incident waves to shallow-angle waves. One such cross-section includes a channel running along a portion of the lower edge of the probe. Another cross-section includes a narrow lower edge of the probe. Another cross-section is elliptical. Another cross-section includes transverse bores originating in the lower edge of the probe. As an alternative to, or in addition to, providing a probe having a cross-section other than circular, the present invention may also provide a probe having a roughened lower surface.

40 Claims, 15 Drawing figures
Exemplary Claim Number: 34
Number of Drawing Sheets: 7

☐ 3. Document ID: US 6681782 B2

L13: Entry 3 of 3 File: USPT Jan 27, 2004

US-PAT-NO: 6681782
DOCUMENT-IDENTIFIER: US 6681782 B2
**** See image for Certificate of Correction ****

TITLE: Wafer cleaning

DATE-ISSUED: January 27, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY

Bran; Mario E. Garden Grove CA

US-CL-CURRENT: 134/148; 134/1.3, 134/147, 134/151, 134/153, 134/184, 134/199, 134/25.4, 134/902

ABSTRACT:

Semiconductor wafers are cleaned using megasonic energy to agitate cleaning fluid applied to the wafer. A source of energy vibrates an elongated probe which transmits the acoustic energy into the fluid. The probe has a solid cleaning rod and a flared or stepped rear base. In one form, the probe is made of one piece, and in another, the rod fits into a socket in the base. This enables a rod to be made of material which is compatible with the cleaning solution, while the base may be of a different material. A heat transfer member acoustically coupled to the probe base and to a transducer conducts heat away from the transducer. A housing for the heat transfer member and the transducer supports those components and provides means for conducting coolant through the housing to control the temperature of the transducer. In another arrangement, an end of the housing is coupled between the transducer and the probe. In one arrangement, fluid is sprayed onto both sides of a wafer while a probe is positioned close to an upper side. In another arrangement, a short probe is positioned with its end face close to the surface of a wafer, and the probe is moved over the wafer as it rotates. The probe may also be positioned through a central hole in a plurality of discs to clean a group of such elements at one time.

12 Claims, 17 Drawing figures
Exemplary Claim Number: 1
Number of Drawing Sheets: 11

Term	Documents
THIN	957096
THINS	4475
ARTICLES	279861
ARTICLE	383950
CLEANING	344856
CLEANINGS	2703
APPLYING	1072739
APPLYINGS	11
FLUID	867669
FLUIDS	278125
TRANSMITTER	219737
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FORM$).PGPB,USPT.

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